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Title : Movement and distribution of Endangered northern bottlenose whales (Hyperoodon ampullatus) on the Scotian Shelf.

Category : Conservation

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Abstract : A population of approximately 130 northern bottlenose whales (Hyperoodon ampullatus) uses the Gully, a prominent submarine canyon off Nova Scotia. This population was designated as Endangered in November 2002 due to the threat from industrial development, particularly oil and gas exploration and exploitation, on and off, the Scotian Shelf. Only 40% of this population uses the Gully at a given time and, previously, it was not known where the whales went when they left the Gully. Visual and acoustic surveys conducted in 2001 along the 1000m contour from New Jersey to the Grand Banks indicated that bottlenose whales also use Shortland and Haldimand canyons, located 50 and 100km east of the Gully. These canyons were examined in detail in 2002 and, using photoidentification techniques, it was shown that Gully bottlenose whales were using the canyons with some individuals moving between them over intervals of a few days or less. Lagged identification rates (LIR) were calculated over time lags from 1 to 100 days (maximum length of field season) for residence within the same canyon and movements between canyons. Movement models were then fit to the LIR using likelihood methods. Plots of LIR showed that some individuals have a preference for a specific canyon (‘homebodies’, spending on average 20 days within a canyon) while there are others which move between canyons (‘travellers’, spending only about 1-2 days in a given canyon). Reliably-marked animals identified from the Gully in 1988-1999 were more likely to be found in the Gully than in Shortland and Haldimand canyons in 2001 and 2002 ($p=0.021$). This research has clearly shown that Shortland and Haldimand canyons are important habitat to northern bottlenose whales, and that while there are frequent movements between canyons, mixing is incomplete. In order to fully protect this endangered population, these canyons should be protected, particularly from petroleum development.